

PATENT ABSTRACTS OF JAPAN

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(54) GRANULAR TREATING MATERIAL FOR ANIMAL EXCREMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a granular treating material for animal excrement composed of a specific granule and a surfactant attached to the surface of the granule, enabling effective utilization of resources having excellent deodorizing property and water-absorptivity and preservable over a long period without causing the generation of mold, or the like.

SOLUTION: The objective treating material is composed of a granule having a particle diameter of ≤ 3 mm and produced by granulating waste paper powder such as crushed waste paper having scarcely wettable surface and a powdery water-absorbing resin such as a crosslinked polyacrylic acid of an amount less than the amount of the waste paper powder and a surfactant such as an anionic surfactant attached to the surface of the granule. Preferably, the waste paper powder is crushed materials of waste paper diaper, slitting scrap of paper diaper, printed paper or paper having paraffin-coated or plastic-coated surface.

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Notes:

1. Untranslatable words are replaced with asterisks (****).
2. Texts in the figures are not translated and shown as it is.

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FULL CONTENTS

[Claim(s)]

[Claim 1]Granular excrement treatment material for animals, wherein a surface active agent has adhered [grain which contains a small quantity of powdered hydrophilic resin, and is formed granular from paper scrap wood powder and this paper scrap wood of 3 mm or less of a grain size, and] to this grain surface part.

[Claim 2]Granular excrement treatment material for animals, wherein a surface active

agent has adhered [grain which contains plastics scrap wood powder of a quantity smaller than paper scrap wood powder, and is formed granular with a small quantity of hydrophilic resin, and a grain size of 3 mm or less from paper scrap wood powder and this paper scrap wood of 3 mm or less of a grain size, and] to this grain surface part.

[Claim 3]The granular excrement treatment material for animals according to claim 1 or 2, wherein paper scrap wood powder is a ground product of paper scrap wood which has the surface easily dry in water.

[Claim 4]The granular excrement treatment material for animals according to any one of claims 1 to 3 being a ground product of paper in which a ground product of disposable diaper scrap wood, a ground product of cutting waste at the time of manufacture of a disposable diaper, and a ground product of printed paper are covered for paper scrap wood, and a paraffin film or a plastic material film is covered for the surface.

[Claim 5]The granular excrement treatment material for animals according to claim 1 or 2, wherein a surface active agent is a cationic surfactant.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention The ground product of paper scrap wood, i.e., disposable diaper scrap wood, the ground product of the cutting waste at the time of manufacture of a disposable diaper, Paper scrap wood ground products, such as ground product disposable diaper scrap wood powder etc. of the paper in which the paraffin film or the plastic material film is covered for the surfaces, such as punch waste, a ground product of the paper by which scrap paper printing was carried out, or lamination paper, or the mixture of a more than [these], Or it is especially related with excrement treatment material for animals in which thermal disposal is possible in the state of water and a manufacturing method for the same after use about excrement treatment material for animals which uses the mixture of said paper scrap wood and a plastics scrap wood ground product as a raw material, and a manufacturing method for the same.

[0002]

[Description of the Prior Art]The sand of mineral matters, such as zeolite, is used as excrement treatment material for animals, such as cat sand. However, the discarding treatment after use is difficult and cat sand made from the sand of such a mineral matter is made into the problem. Then, with combustibility, pulp and paper powder which are easily damp in water are mixed with a water-absorbing resin, and it is formed granular. These cat sand is crushed together with a kitchen garbage, and together collection **** and a kitchen garbage, and thermal disposal is carried out.

[0003]

[Means for solving problem]However, a pulp ground product is difficult to receive as compared with old, and since it is comparatively expensive, the use is made into the problem. this invention person already For example, the ground product of disposable diaper scrap wood, such as a poor disposable diaper, The ground product of sanitary napkin scrap wood, such as a ground product of animal paper diaper scrap wood, such as a poor animal paper diaper, and a poor sanitary napkin, The ground product of sweat pad scrap wood, such as a ground product of milk pad scrap wood, such as a poor milk pad,

and a poor sweat pad, It proposed that the ground product of plastic lining converted paper scrap wood and/or the ground product of plastics scrap wood discovered having absorptivity and water retention, carried out granulation of the ground product of these scrap wood, and considered it as excrement treatment material for animals, such as cat sand. In the case of materials in which it is comparatively apt for this invention person to flip water, such as the inside of the ground product of such scrap wood, for example, a newspaper etc., though it has water retention, absorptivity velocity becomes comparatively small and it is made into the problem. An object of this invention is to solve the problem concerning the speed of water absorption of paper scrap wood.

[0004]

[Means for solving problem]An object of this invention is to provide the excrement treatment material for animals which big water retention and absorptivity velocity have, even if it is a case of paper scrap wood and materials which are comparatively especially easy to flip water, such as a newspaper. By processing the surface of the agglomerated material of the ground product of paper scrap wood, and the ground product of plastics scrap wood which does not get wet easily in water or is easy to flip water in it with a surface active agent, this invention person discovered water absorption capacity increasing and increasing speed of water absorption, discovered that it could be used as cat sand, and resulted in this invention.

[0005]Namely, the grain which this invention contains the powdered hydrophilic resin of a quantity smaller than the paper scrap wood powder and this paper scrap wood of 3 mm or less of a grain size, and is formed granular, Are that the surface active agent has adhered to this grain surface part in the granular excrement treatment material for animals by which it is characterized, and, [this invention] The grain which contains the plastics scrap wood powder of a quantity smaller than paper scrap wood powder, and is formed granular with a small quantity of hydrophilic resin, and the grain size of 3 mm or less from the paper scrap wood powder and this paper scrap wood of 3 mm or less of the grain size, It is in the granular excrement treatment material for animals, wherein the surface active agent has adhered to this grain surface part.

[0006]

[Mode for carrying out the invention][the paper scrap wood which is not easily damp in water or is easy to flip water in it in this invention] For example, the ground product of disposable diaper scrap wood, the ground product of the cutting waste at the time of manufacture of a disposable diaper, Paper scrap wood ground products, such as ground product disposable diaper scrap wood powder etc. of the paper in which the paraffin film or the plastic material film is covered for the surfaces, such as a ground product of printed papers, such as punch waste, scrap paper, a printed newspaper, a magazine, and an advertisement, or lamination paper, or the mixture of a more than [these], Or the mixture of said paper scrap wood and a plastics scrap wood ground product is included.

[0007]In this invention, a surface active agent is applied in order that the agglomerated material of the ground product of paper scrap wood may enlarge speed of water absorption of water, and a cationic surfactant, a non-ion or a surface active agent, and an anionic surfactant can be used for it. As an anionic surfactant, there are a dodecylbenzenesulfonic acid and sulfo ***** type anionic surfactant etc., and, for example, [as a nonionic surface active agent] There are octylphenyl ether, a polyoxyethylene derivative, etc. and there are lauryl trimethylammonium chloride, stearyl

trimethylammonium chloride, coconut amine acetate, etc. as a cationic surfactant.

[0008]In this invention, a paper scrap wood ground product or this paper scrap wood ground product, and the mixture of hydrophilic resin can be used for agglomerated material. In this invention, [the granular excrement treatment material for animals] Since the development of the mold at the time of storage can be prevented by drying moisture content 15 or less weight % so that it may become 10 weight % preferably, when carrying out granulation with 20weight % or more of water content, it is preferred to dry until it becomes 10 or less weight % of water content in the final stage.

[0009]Since the ground product grains of lamination paper get wet in water and water can be held among these ground product grains in this invention, have absorptivity and water retention, but. At the time of use of the granular excrement treatment material for animals, since absorption and water retention of excrement can fully be performed, it is preferred to add hydrophilic resin, such as a water-absorbing resin. In the stage which carries out granulation of the mixture to be fabricated granular, since the water retention function of a mixture to be fabricated is improved, and extrusion granulation can be smoothly performed in order to function as lubrication material at the time of the granulation of a mixture to be fabricated, it is still more preferred to add hydrophilic resin to the mixture with which shaping is presented. In this case, although hydrophilic resin is used as 10% or less of agglomerated material, it is preferred to consider it as 0.5 thru/or 5 weight %.

[0010]In this invention, the excrement treatment material for animals can form a core part and/or a covering section. In this case, a water-absorbing resin can be used for a core part, a covering section or a core part, and a covering section. When a water-absorbing resin is blended with the granular core part of the granular excrement treatment material for animals, for example, since a water-absorbing resin absorbs water from the circumference of a granular core part at the time of elimination, and it swells, and it acts so that water may be retained, it can adjust the humidity of a core part and a covering section, and is preferred.

[0011]Even if a water-absorbing resin absorbs the tens to about 200 times water of prudence, [in this invention] [a water-absorbing resin] Are a form resin which can be held and For example, vinyl ester, ethylene system unsaturated carboxylic acid, or a copolymer saponification thing with the derivative, Starch, the graft polymer of acrylic acid, the bridge formation thing of polyacrylic acid, the copolymer of vinyl alcohol and acrylic acid, There is the partial hydrolysate of polyacrylonitrile, a bridge formation thing of carboxymethylcellulose, a bridge formation thing of polyethylene glycol, a salt of chitosan, or a gel of pullulan, and these mix these [independent or] two or more sorts to disposable diaper scrap wood, and are used for it as quality of a compound.

[0012]In this invention, although the hydrophilic resin of it being a water-absorbing resin which has high water absorption capacity is preferred, water absorption magnification can use resin of inferior goods as a water-absorbing resin with scarce less than 20 g/g and water absorption capacity, for example. Such water absorption capacity low ** Is, and, [the inferior goods of polyacrylic resin] There is what has as detailed a grain size as a not less than 600-micrometer thing and 10 micrometers or less, and they are acquired, for example from diaper scrap wood by carrying out the classification of the inferior goods of these water-absorbing resins, or can be obtained as a nonstandard product of polyacrylic resin. It is preferred that a grain size uses not less than 600-micrometer

inferior goods for a granular core part, and it is preferred that a grain size uses detailed inferior goods of 10 micrometers or less for a covering section. Thus, in the scrap wood of a diaper, since the water-absorbing resin contains, when the scrap wood of a diaper is blended with paper powder, the loadings of hydrophilic resin can be reduced that much.

[0013]In this invention, although it can be considered only as agglomerated material, a core part and an enveloping layer part can be formed in the agglomerated material of the excrement treatment material for animals. As for a surface active agent, when forming a core part and a covering section, it is preferred to make a covering section contain. In this invention, in order to avoid the development of the mold at the time of preservation, an antifungal agent, i.e., the substance which has a germicidal action, can be added in a granular core part, an enveloping layer part or a granular core part, and an enveloping layer part. As an antifungal agent which has such a germicidal action, there are germicides, such as salt, sorbic acid or its salt, calcium propionate, sodium hypochlorite and/or sodium benzoate, or its salt, antiseptics, and an antifungal agent. In this invention, it is preferred to mix an adsorbent or deodorants, such as powdered activated carbon, bentonite, or silica, in granular agglomerated material, core part, or covering material.

[0014]In this invention, in order to avoid powdering of the excrement treatment material at the time of use, it is preferred to blend with the ground product of disposable diaper scrap wood powder the substance which has an adhesion function. [as a substance which has such an adhesion function] [as a water-soluble or water-dispersion thing] Paper powder, paper pulp, paper making sludge, pulp sludge, polyvinyl alcohol (PVA), There is flour, starch, cornstarch, carboxymethylcellulose (CMC), pullulan, or gelatin, and they can be used alone, or these can mix these two or more sorts, and can use them as quality of a compound. [as the quality of a compound of alcoholic solubility] There is hydroxyethyl cellulose (HEC), hydroxypropylcellulose (HPC), or polyvinyl pyrrolidone ** (PVP), and also in this case, similarly, these are used alone, respectively, or can mix and use these two or more sorts.

[0015]When the granular excrement treatment material for animals blends bentonite powder and/or amorphous silica powder with disposable diaper scrap wood powder and granulation is carried out to it in this invention, If it is preferred that granulation is carried out, for example to agglomerated material with a grain size of not less than 3 mm in order to avoid existence of the detailed dust after granulation as much as possible, but granulation is carried out to a grain with a grain size of not less than 5 mm, even if [even] it will become difficult to break up indoors and will break up, for example from the box for toilets, It is easy to gather and collect grains, and it is desirable when maintaining indoor health. However, neither existence of a grain of 3 mm or less nor existence of a grain of 5 mm or less is completely excluded in these cases. Agglomerated material can be formed in a globular shape, a column, grain form, and granular ** several-kinds shape in this invention.

[0016]When the paper scrap wood powder etc. of the covering material made to adhere to the surface of the agglomerated material of disposable diaper scrap wood powder are made to adhere with the adhesives of water solubility or alcoholic solubility, since agglomerated material adheres simply and they serve as a lump with the urine etc. which adhered to agglomerated material at the time of elimination of an animal, it is desirable. If the polyacrylamide which has agglutination is blended when forming the enveloping layer formed in the surface of the agglomerated material of disposable diaper scrap wood

powder with the mixture of paper scrap wood powder and hydrophilic resin, since adhesion between coated particles will become good, it is desirable. In this invention, in mixing equipment, it is mixed without mixing water or mixing water, and granulation of the mixture of disposable diaper scrap wood powder and a water-absorbing resin can be carried out with granulator. As granulator, when mixing without being able to use the extrusion granulator of conventionally well-known and adding water, when adding water and mixing, granulating machines, such as a roll-die disk extrusion granulating machine and a disk pelleter, can be used. When desiccation is required when adding and carrying out granulation of the water, but carrying out granulation without adding water, and forming an enveloping layer, it is carried out by spraying water, but it can still do to 5 or less weight %, and it can manufacture without needing a drying process.

[0018]However, in this invention, when adding and carrying out granulation of the water, it can carry out using a bread type, a drum type, and various fluid bed type granulators in addition to extrusion granulator. In the agglomerated material of said disposable diaper scrap wood powder, the substance etc. which have the substance, the hydrophilic resin, oil absorption material, and germicidal action which have adhesion ability are sprinkled after granulation, It is preferred to make it not exfoliate easily by forming the enveloping layer which has the target character on the surface of agglomerated material, making the substance which has adhesion ability etc. in this enveloping layer adhere, and drying after that.

[0019]In the process of covering covering material to the agglomerated material which serves as a core part especially at the granular excrement treatment material for animals of this invention, Since two or more things of paper scrap wood powder, a water-absorbing resin and the substance that has flour, poval, starch, or other adhesive actions in addition to this, the substance which has a germicidal action, or the quality of these compounds are mixable, It will adhere to the excrement of an animal, excrement will be wrapped in massive, and a rearrangement is easy and easy. When a deodorant and/or a desiccant are mixed by the enveloping layer, the smell of the food and drink adhering to tableware, such as a diaper scrap wood powder pan, etc. can be removed, and deodorization property and absorptivity further outstanding as excrement treatment material for animals can be demonstrated. When the substance which has a germicidal action in a granular core part and/or a covering section is mixed further again, there is no development of mold etc., and the excrement treatment material for animals can continue and can be saved at a long period of time. [0020]

[Working example]Hereafter, although an example is given and explained about the mode of operation of this invention, this invention is not restricted at all by the following explanation and illustration. Drawing 1 is a flowchart of an outline showing the process of manufacturing the granular excrement treatment material for animals of one embodiment of this invention.

[0021]In drawing 1, first, the belt 2 for newspaper scrap wood supply connects with the primary crusher 3, and the manufacturing installation 1 of the granular excrement treatment material for animals is formed. In this example, it connected with the belt conveyer 5 for forming newspaper dry grinding PARUBU, and the exit part 6 of ** RUTOKOMBEYA 5 has connected the exit 4 of the primary crusher 3 to the belt conveyer 7. It connected with the inlet section 9 of the grinder 8, and the belt conveyer 7 has connected the exit part 10 of the grinder 8 to the inlet section 13 of the settling

chamber 12 which carries out the sedimentation of the ground product via the air transfer pipe 11. Have connected the exit part 14 of the settling chamber 12 to the screw feeder 15, and, [the screw feeder 15] The water-absorbing resin supply tank 16 for supplying a water-absorbing resin to a newspaper ground product connected via the conveyor 17 in fixed quantity, and the water supply tank 18 for supplying the water for granulation to the mixture of a newspaper and a water-absorbing resin has connected with the downstream via the water feed pipe 19. The screw feeder 15 is connected to the inlet section 21 of the granulating machine 20 of disk pelleter form in this example. The exit part 22 of the granulating machine 20 is connected to the belt conveyer 23, and the agglomerated material by which granulation was carried out is sent to the inlet section 25 of the vibrated type covering device 24 on the belt conveyer 23 from the exit part of the granulating machine 20. In this example, the spraying nozzle 27 of the hydrophilic agent atomiser linked to the hydrophilic agent dilution tank 26 is projected and formed in the vibrated type covering device 24. The outlet pipe 28 of the vibrated type covering device 24 is prolonged in the vibrated type screen machine 29.

The agglomerated material with which the hydrophilic agent was covered is sent to the vibrated type screen machine 29, sifts out agglomerated material with a 5-mm length [in diameter] of 6 mm, and is sent out to the belt conveyer 31 linked to the exit part 30 of the vibrated type screen machine 29.

The exit part 32 of the belt conveyer 31 is connected to the product tank 33.

Products 5 mm in diameter are collected, and it is sent and packed by the automatic packaging device 35 via the belt conveyer 34 linked to the product tank 33.

[0022]In the device shown in example 1 drawing 1, first, newspaper 95 weight section is supplied to the belt 2 for newspaper scrap wood supply, and crushing is carried out to the manufacturing installation 1 of the granular excrement treatment material for animals with the primary crusher 3. In this example, from the exit 4 of the primary crusher 3, in order to form newspaper dry grinding PARUBU, the newspaper by which crushing was carried out is sent to the grinder 8 through the belt conveyers 5 and 7, and is ground by the grain size of 3 mm or less. The ground product of the ground newspaper is sent into the settling chamber 12 to which the exit part 10 of the grinder 8 carries out the sedimentation of the ground product via the air transfer pipe 11 from the inlet section 13, and it dissociates by the settling chamber 12. The ground product of the newspaper separated by the settling chamber 12 is sent out to the screw feeder 15, and from the water-absorbing resin supply tank 16, in fixed quantity, via the conveyor 17, five weight sections of water-absorbing resins are mixed by the newspaper ground product, and it ranks second, 10% of the whole water supplies the newspaper ground product and the mixture of a water-absorbing resin with which the water-absorbing resin was mixed via the water feed pipe 19 from the water supply tank 18. Granulation of the newspaper ground product and the mixture of a water-absorbing resin with which water was mixed is introduced and carried out from the inlet section 21 of the granulating machine 20 of disk pelleter form with the screw feeder 15. The agglomerated material by which granulation was carried out with the granulating machine 20 is sent to the inlet section 25 of the vibrated type covering device 24 via the belt conveyer 23 from the exit part of the granulating machine 20, and the hydrophilic agent dilution tank 26 to a hydrophilic agent diluted solution is sprayed from the spraying nozzle 27 of a hydrophilic agent atomiser

there. The agglomerated material in which the hydrophilic agent diluted solution was sprayed is sent to the vibrated type screen machine 29 by the outlet pipe 28 of the vibrated type covering device 24, the agglomerated material with which the hydrophilic agent was covered is the vibrated type screen machine 29, and agglomerated material less than 5 mm in diameter and less than 6 mm in length is sifted out. The newspaper ground product not less than 5 mm in diameter and not less than 6 mm in length and the mixing granulation thing of a water-absorbing resin which were sifted out are sent out to the belt conveyer 31 from the exit part 30 of the vibrated type screen machine 29. The mixing granulation thing sent out to the belt conveyer 31 is introduced into the product tank 33 from the exit part 32, and products 5 mm in diameter and 6 mm in length are collected. The product brought together in the product tank 33 is sent and packed by the automatic packaging device 35 via the belt conveyer 34 to connect.

[0023]Although the newspaper ground product was used as paper scrap wood powder, granulation of 5% of the water-absorbing resin (super absorbent polymer) was mixed and carried out to this in the example of two examples and it was considered as the excrement treatment material for animals, Since a water-absorbing resin is contained, like ground product 15 weight section with a grain size of 3 mm or less of the disposable diaper of inferior goods, and the clicker at the time of disposable diaper manufacture, produce disposable diaper scrap wood and mainly, Granulation of 80 weight % of ground products with a grain size of 3 mm or less of cutting waste (trimming loss) and 5 weight % of ground products of the sanitary napkin of inferior goods containing polyethylene and polypropylene can be mixed and carried out, and it can be considered as the excrement treatment material for animals.

[0024]In the example of three examples, as paper scrap wood powder of Example 1, it can replace with a newspaper ground product and 5% of water-absorbing resin (super absorbent polymer), 30 weight % of ground products and 70 weight % of trimming loss of a disposable diaper of inferior goods can be used, and it can be considered as the excrement treatment material for animals.

[0025]As a hydrophilic agent used in example of example of examination 1, Example 2, and Example 3, [activator / field side] The surface active agent diluted solution which diluted the surface active agent ten ml with 80 ml of water (a), [the excrement treatment material for animals manufactured using the surface active agent diluted solution (c) which diluted with 740 ml of water the surface active agent diluted solution (b) and 10 ml of surface active agents which diluted 10 ml of surface active agents with 140 ml of water] considering it as a sample and filling up glass cylindrical cups with a 140-mm height [in diameter] of 150 mm about each sample at a height of 100 mm -- a 50-ml syringe -- 20 ml of false urine -- the central part of the cylindrical cup -- 5 -- or it

***** (ed) over 6 seconds. The result is shown in the next table 1. The example which does not use a hydrophilic agent in the process in which the excrement treatment material for animals is manufactured, respectively, by Example 1, Example 2, and Example 3 was made into the comparative example 1, the comparative example 2, and the comparative example 3.

表1

事 例	界面活性剤		表面張力	吸水スピード（底部迄の達し度）
	種 類	濃 度		
実施例1	C	a	無	普通（底部に微小達する）
実施例1	C	b	無	良くない（底部に達する）
実施例1	C	c	無	良くない（底部に達する）
実施例2	B	a	無	良い（底部迄達せず）
実施例2	B	b	無	良い（底部迄達せず）
実施例2	B	c	無	普通（底部に微小達する）
実施例3	A	a	無	良い（底部迄達せず）
実施例3	A	b	無	良い（底部迄達せず）
実施例3	A	c	無	良い（底部迄達せず）
比較例1			有	悪い（底部迄達する。殆どストレート）
比較例2			有	悪い（底部迄達する。殆どストレート）
比較例3			有	悪い（底部迄達する。殆どストレート）

The inside of front and the surface active agent A show sodium dodecylbenzenesulfonate of a surface active agent, and are the surface active agent B. The octyl phenyl ether of a surface active agent is shown, and the surface active agent C shows the lauryl trimethylammonium chloride of a surface active agent.

[0026]

[Effect of the Invention]The material which has the character to be hard to get wet the granular excrement treatment material for animals in the water repellence or water of plastic material etc. in this invention, or its scrap wood, Or paper scrap wood powder with a grain size of 3 mm or less is blended, the paper scrap wood which has a plastics thin film etc. which have the character to be hard to get wet in water repellence or water is formed granular, and the solution of a surface active agent is applied to the surface of the formed granular material.

Therefore, as compared with the excrement treatment material of the conventional animal, the rate of absorption of fluids, such as the urine, can be large, and it can absorb comparatively in a short time.

Thermal disposal can be carried out as common garbage after use.

[0027]Since this invention uses as the raw material of the excrement treatment material for animals water-repellent paper scrap wood which is not used as a raw material of the conventional excrement treatment material for animals using the water retention, The shortage of raw materials of the excrement treatment material for animals is compensated, and the problem concerning the fire retardancy of the wet excrement treatment material for animals is solved at once using plastic material in scrap wood. It is significant in respect of mitigation of effective use of resources, and the cost of disposal of paper scrap wood, mitigation of treatment of environmental waste, etc.

[Brief Description of the Drawings]

[Drawing 1] It is a flow flowchart of an outline showing the process of manufacturing the excrement treatment material for animals of one embodiment of this invention.

[Explanations of letters or numerals]

1 Manufacturing installation of granular excrement treatment material for animals

2, 5, and 7 Belt conveyer

3 Primary crusher

4 Exit of primary crusher

5 Fixed quantity type belt conveyer

6 Exit of belt conveyer 5

8 Grinder

9 Inlet section of grinder

10 Exit part of grinder

11 Air transfer pipe

12 Settling chamber

13 Inlet section of settling chamber 12

14 Exit part of settling chamber 12

15 Screw feeder

16 High-class aqueous resin supply tank

17 Fixed quantity conveyor

18 Water supply tank

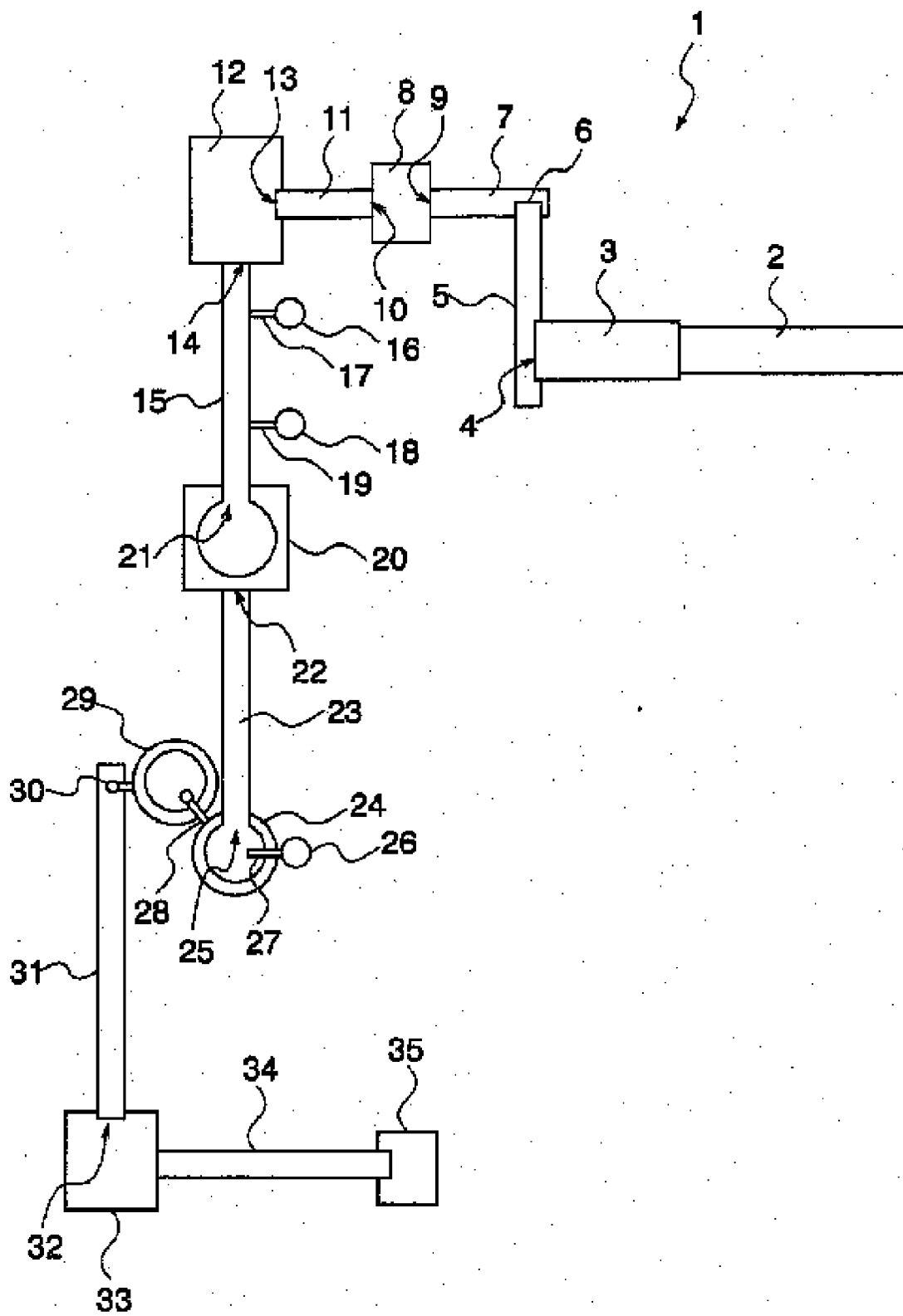
19 Water feed pipe

20 Granulating machine

21 Inlet section of granulating machine

22 Exit part of granulating machine

[Drawing 1]



[Written Amendment]

[Filing date]Heisei 10(1998) August 29 (1998.8.29)

[Amendment 1]

[Document to be Amended]Description

[Item(s) to be Amended]Claims

[Method of Amendment]Change

[Proposed Amendment]

[Claim(s)]

[Claim 1]Granular excrement treatment material for animals, wherein a surface active agent has adhered [grain which contains a small quantity of powdered hydrophilic resin, and is formed granular from paper scrap wood powder with a grain size of 3 mm or less and this paper scrap wood powder, and] to this grain surface part.

[Claim 2]Granular excrement treatment material for animals, wherein a surface active agent has adhered [grain which contains plastics scrap wood powder of a quantity smaller than paper scrap wood powder, and is formed granular with a small quantity of hydrophilic resin, and a grain size of 3 mm or less from paper scrap wood powder with a grain size of 3 mm or less and this paper scrap wood powder, and] to this grain surface part.

[Claim 3]The granular excrement treatment material for animals according to claim 1 or 2, wherein paper scrap wood powder is a ground product of paper scrap wood which has the surface easily dry in water.

[Claim 4]The granular excrement treatment material for animals according to any one of claims 1 to 3 being a ground product of paper in which a ground product of disposable diaper scrap wood, a ground product of cutting waste at the time of manufacture of a disposable diaper, and a ground product of printed paper are covered for paper scrap wood powder, and a paraffin film or a plastic material film is covered for the surface.

[Claim 5]The granular excrement treatment material for animals according to claim 1 or 2, wherein a surface active agent is an anionic surfactant.

[Amendment 2]

[Document to be Amended]Description

[Item(s) to be Amended]0007

[Method of Amendment]Change

[Proposed Amendment]

[0007]In this invention, a surface active agent is applied in order that the agglomerated material of the ground product of paper scrap wood may enlarge speed of water absorption of water, and a cationic surfactant, a nonionic surface active agent, and an anionic surfactant can be used for it. As an anionic surfactant, there are a dodecylbenzenesulfonic acid and sulfo ***** type anionic surfactant etc., and, for example, [as a nonionic surface active agent] There are octylphenyl ether, a polyoxyethylene derivative, etc. and there are lauryl trimethylammonium chloride, stearyl trimethylammonium chloride, coconut amine acetate, etc. as a cationic surfactant.

[Amendment 3]

[Document to be Amended]Description

[Item(s) to be Amended]Brief explanation of the drawings

[Method of Amendment]Change

[Proposed Amendment]

[Brief Description of the Drawings]

[Drawing 1] It is a flow flowchart of an outline showing the process of manufacturing the excrement treatment material for animals of one embodiment of this invention.

[Explanations of letters or numerals]

1 Manufacturing installation of granular excrement treatment material for animals

2, 5, 7, 23, 31, 34 belt conveyers

3 Primary crusher

4 Exit of primary crusher

5 Fixed quantity type belt conveyer

6 Exit of belt conveyer 5

8 Grinder

9 Inlet section of grinder

10 Exit part of grinder

11 Air transfer pipe

12 Settling chamber

13 Inlet section of settling chamber 12

14 Exit part of settling chamber 12

15 Screw feeder

16 High-class aqueous resin supply tank

17 Fixed quantity conveyor

18 Water supply tank

19 Water feed pipe

20 Granulating machine

21 Inlet section of granulating machine

22 Exit part of granulating machine

24 Covering device

25 Entrance part of covering device 24

26 Hydrophilic agent dilution tank

27 Spraying nozzle of hydrophilic agent atomiser

28 Outlet pipe of covering device 24

29 Vibrated type screen machine

30 Exit part of vibrated type screen machine 29

32 Exit part of belt conveyer 31

33 Product tank

35 Automatic packaging device

[Translation done.]